PHENIX

TECHNICAL SUPPORT 2009

PHENIX WEEKLY PLANNING

5/21/2009

Don Lynch

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Next Maintenance Access Day – May 27

- Support Requirements?
- Other Work

Anyone wishing to access the Tunnel either north or south of the IR should inform the RC at least 2 days ahead of time to coordinate with C-A-D. If you require technician assistance inform me as well.

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Shutdown '09 Major tasks (expect 5 month shutdown):

- EOR party June 26/2009 shutdown Begins June 28
- End run, remove wall, MuID collars down, EC to AH (3 weeks)
- RPC Factory Operations (in progress and continuing beyond Shutdown '09)
- RPC Station 3 North (entire shutdown)
- Install Station 1 South scaffolding (1 week)
- Install Station 2/3 scaffolding (2 weeks)
- Install stations 1, 2 and 3 south MuTrigger FEE's (12 weeks)
- MuTr decapacitations: station 3 south (3 weeks)
- PC1 East repair (4 weeks)
- Mechanical/Electrical Plumbing installation of (4) new DCM racks
- Add Ar Dewar and expand gas pad to add storage (12 weeks)
- Prep for future upgrades/existing equipment maintenance & Repair (as necessary)

Shutdown Prep Now to June 28

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Task	Complete By
RPC Installation design parts & Tools	May 15
RPC Electronics Rack Prep	June 20
RPC Installation parts and Tools Fabrication	June 28
MuTrigger FEE Parts and Tools ordering	June 28
MuTrigger FEE Cable Management plan	June 15
RPC3 N Cable and Piping relocation Plan	June 15
RPC Factory Tools complete and commissioned	June 28

End of Run, Start of Shutdown

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Task	Completion Date
• End of Run Party	6/26
• End of Run 9	6/28
• Flammable Gas Purge	6/30
• Open Wall and Disassemble	7/2
• MuID Collar Removal	7/8
• Move MMS South	7/10
• Test RMC Higher comm speed on EC before disconnecting	7/15
• Disconnect EC and move to AH	7/17
• Move MuID Collars to AH	7/20
• Install IR floor plates, rolling cart & manlift in IR	7/22
• Reconnect EC for shutdown mode	7/24
• Remove East/West vertical & Upper Bias MMS lampshades	7/24

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RPC Factory Operations

• Gap and Module assembly and testing (continues through shutdown)	in-progress
• Gap and Module Storage with humidity control (need to get permanent elec., 2nd humidity controller & covers for last 3 storage racks)	Nearly complete
• Tilting transport Table	Nearly complete
• Burn in test stand (Bike rack section)	In Progress
• Burn-in test stand gas system and controls (ready for 1st half octant)	5/29
• Assembly of half-octants for station 3 north	6/1-9/1

RPC Factory

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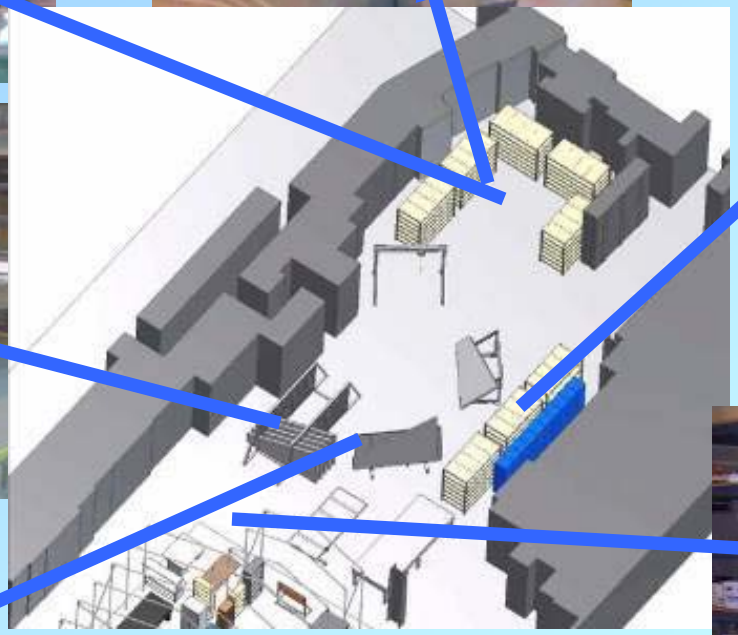

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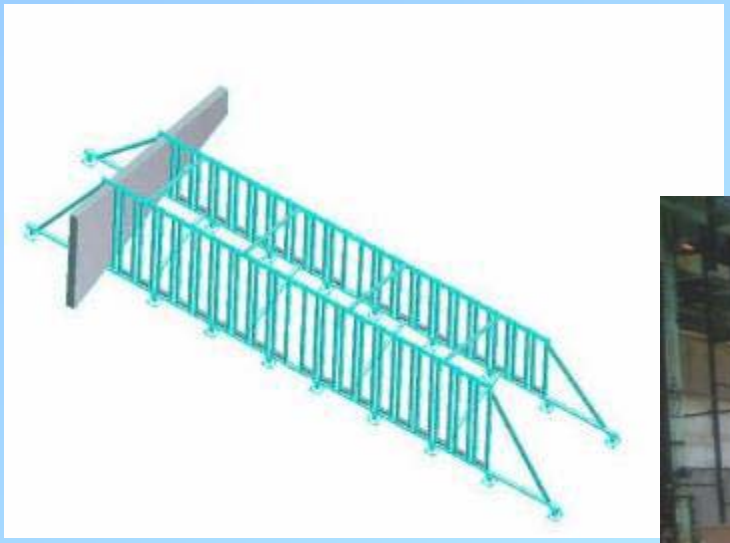
RPC Factory Burn In Test Station
For Octant and Half Octant Burn-in Tests



Assembly in Progress

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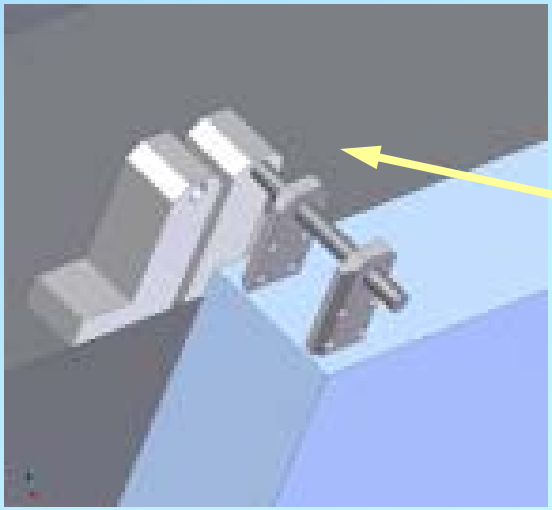
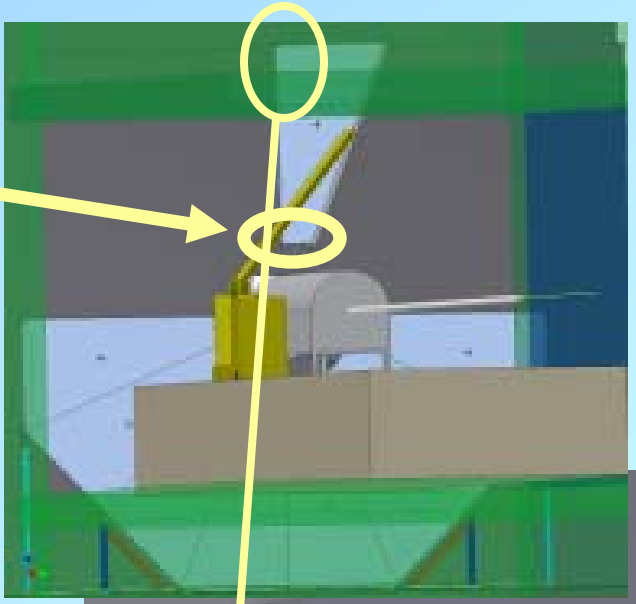
RPC3 North Design Priority

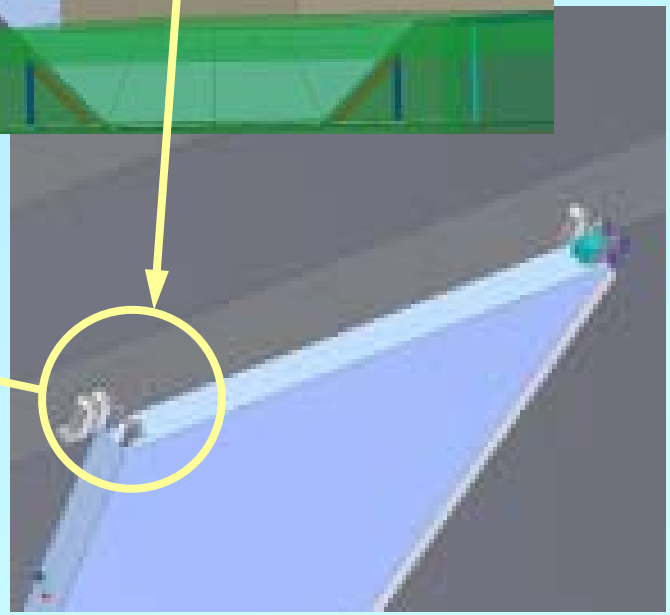
1.	Base Translating Support	- Design done, drawings at CS
2.	Interconnecting blocks	- Design done, drawings at CS
3.	MuID steel drilled hole pattern Upper support brackets (4) with E/W & U/D adjustment	Slides 11 & 12
4.	Central translating clamp East and West X-Y translating clamps & tie-rods	Slides 13 to 15
5.	Base Locking/Installation Fixture	Slide 16
6.	Lifting Fixture Drawings	Slide 17
7.	Survey Fixture	Slide 18
8.	Installation drawing for 7 unistrut guide rails & 2 vertical guide rails	Slide 19
9.	Vertical Base Stackup Illustration	- Revision needed Slide 20
10.	Adjustable cradle	Slide 21

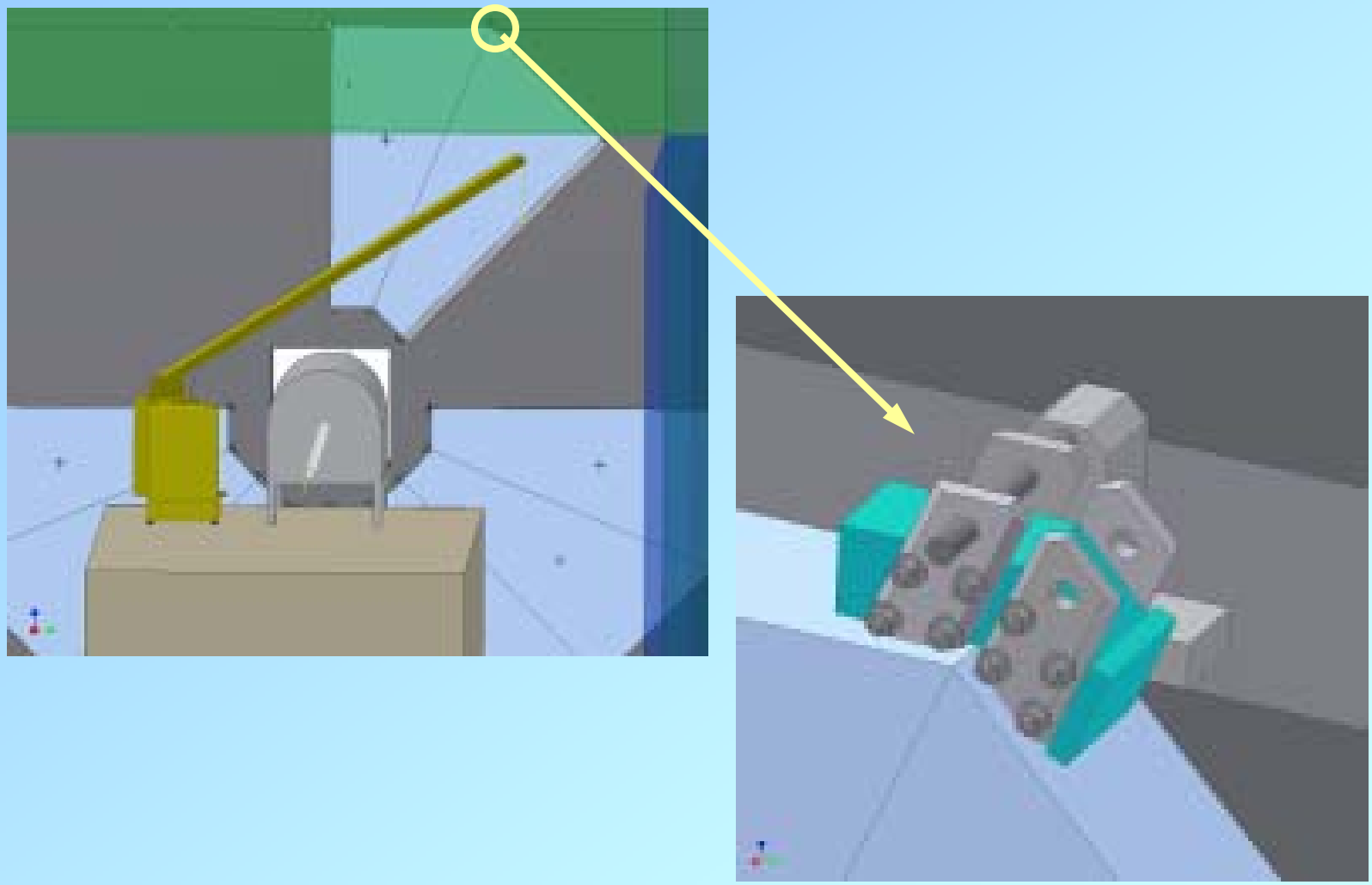
Half Octant West #8

Taped Holes on MuID Steel at inner brackets

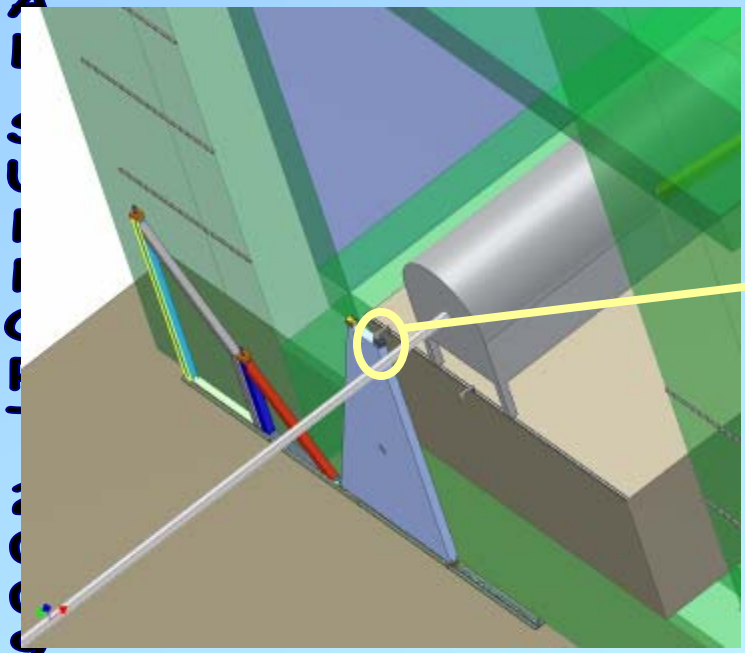


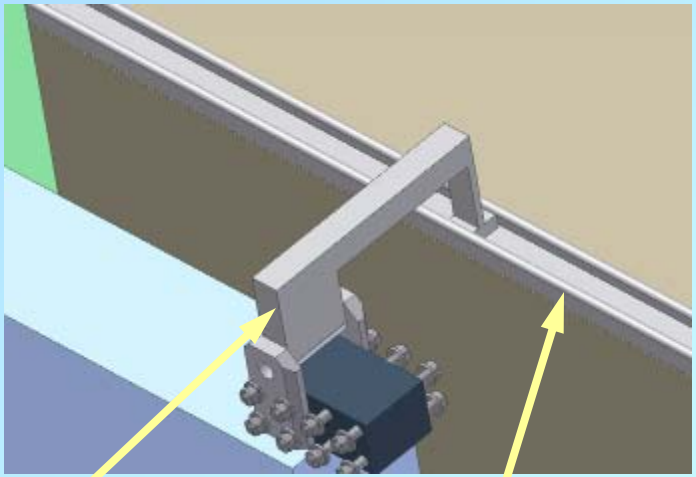






After HO1 west is installed, the clamp shown is used to keep the HO stable in the vertical configuration. Clamp is idealized actual clamp will have adjustments to align the pitch angle.

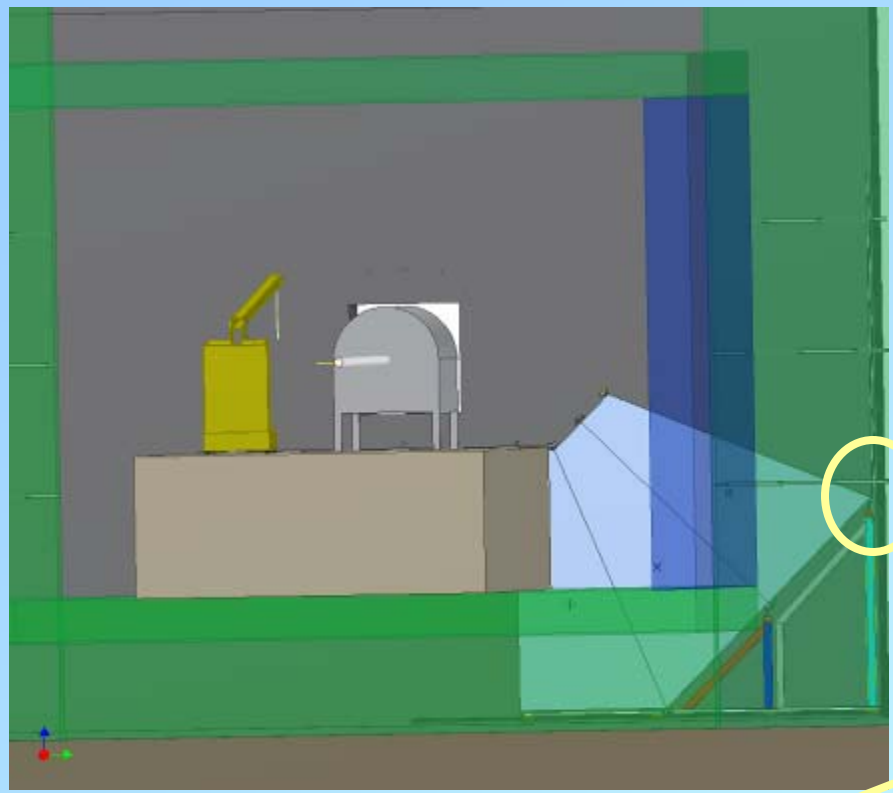


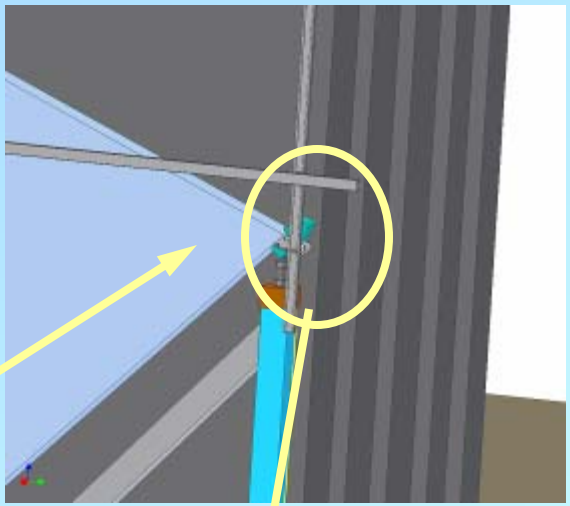


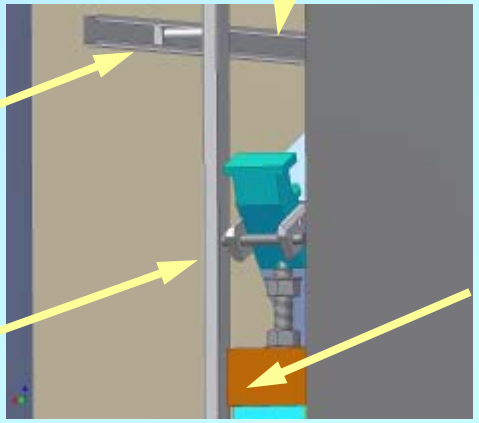
Clamp

Unistrut low profile rail

Note: These views look thru MuID Steel which has been made transparent for this representation





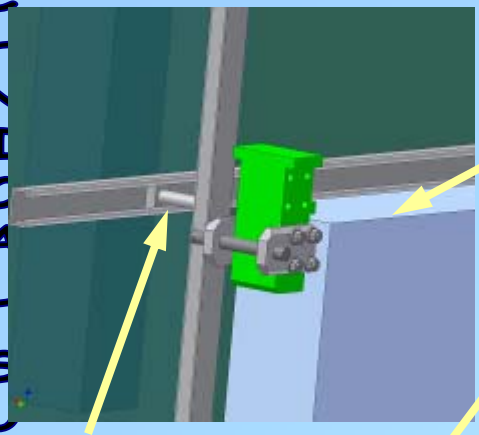


Vertical and horizontal unistrut guide rails attached by double ended rollers here

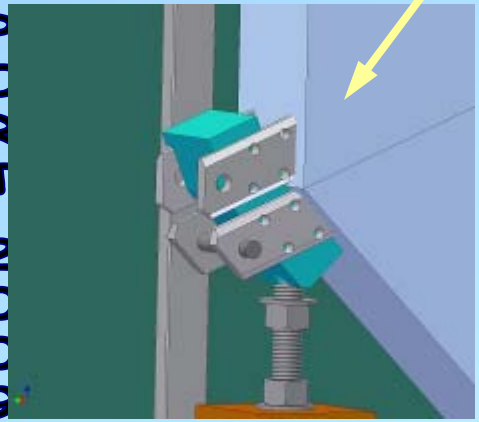
HO_3 attached to vertical unistrut guide rail here

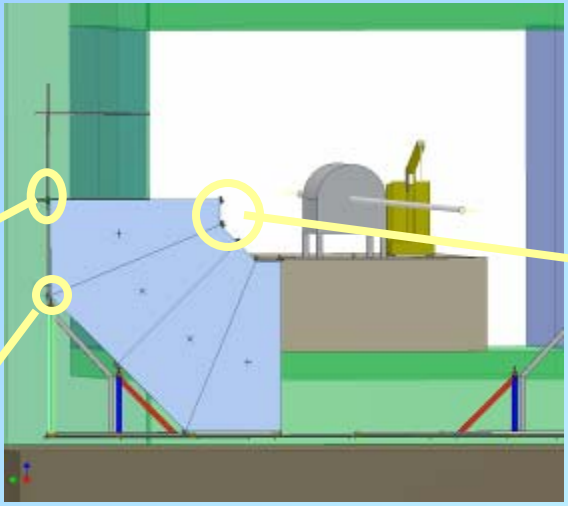
View angle reversed for clarity

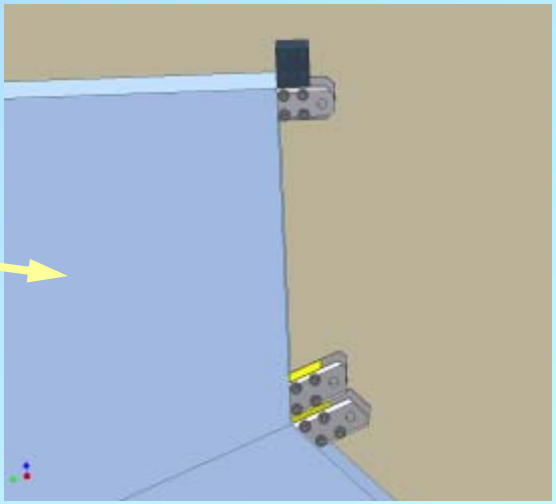
Long Column attached to vertical unistrut guide rail here



Sliding clamp







View looking thru MuID steel plates which have been made transparent. After HO_4 is positioned onto HO_3, inner angled connector at inner 3-4 joint is bolted, inner straight connector has been unbolted from lifting fixture and remains in place to accept HO_5. At outer face lower brackets have been locked into angled bracket at outer 3-4 joint and straight bracket remains in place to accept HO_5. West sliding base is slid west 60" and outer mounting bracket is attached to vertical unistrut guide After the bracket is attached, slide the base back to the 0 position

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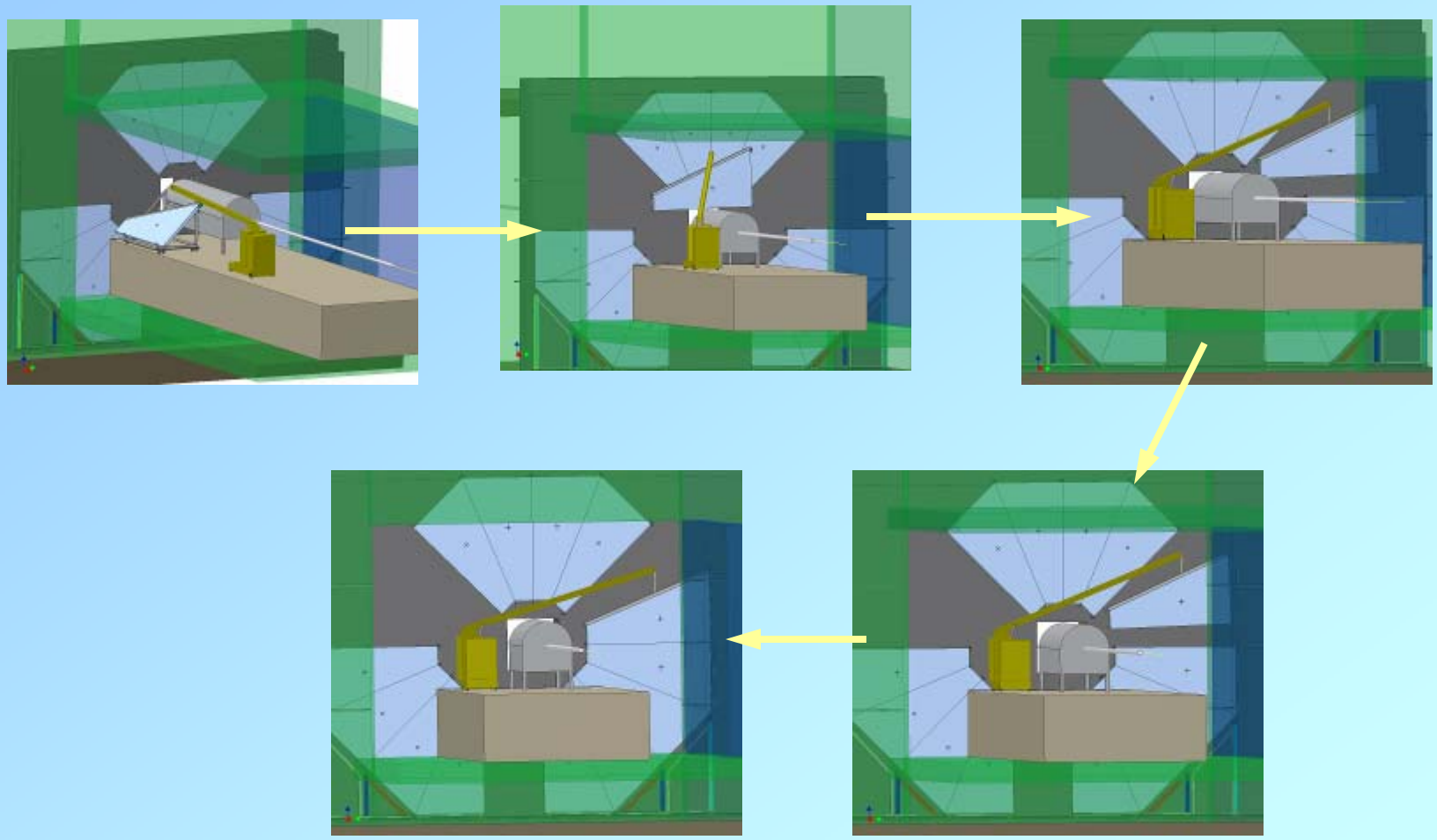

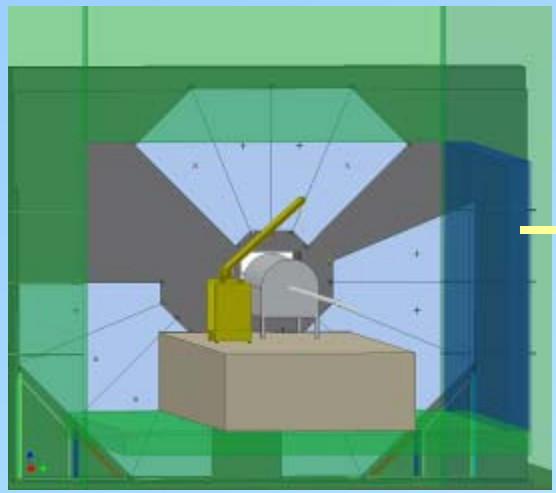

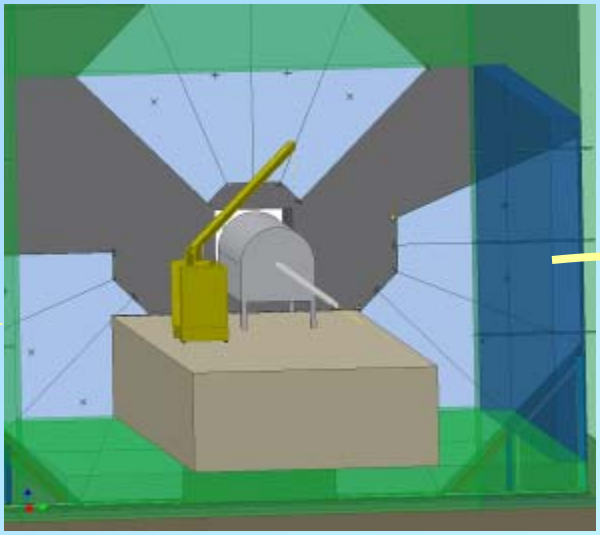

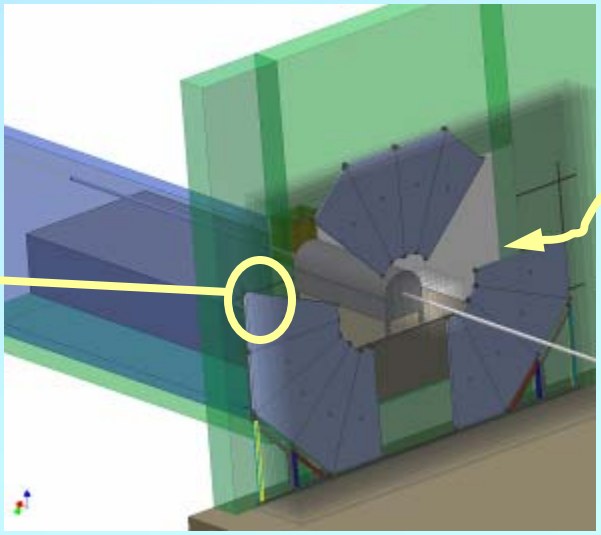

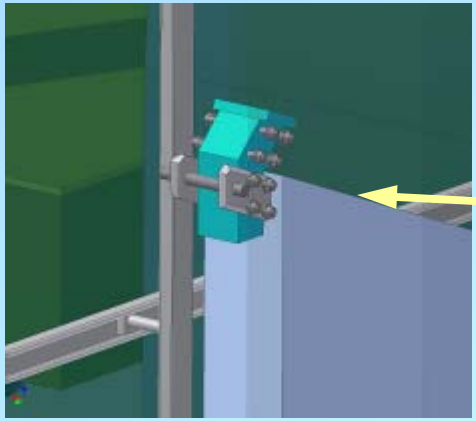

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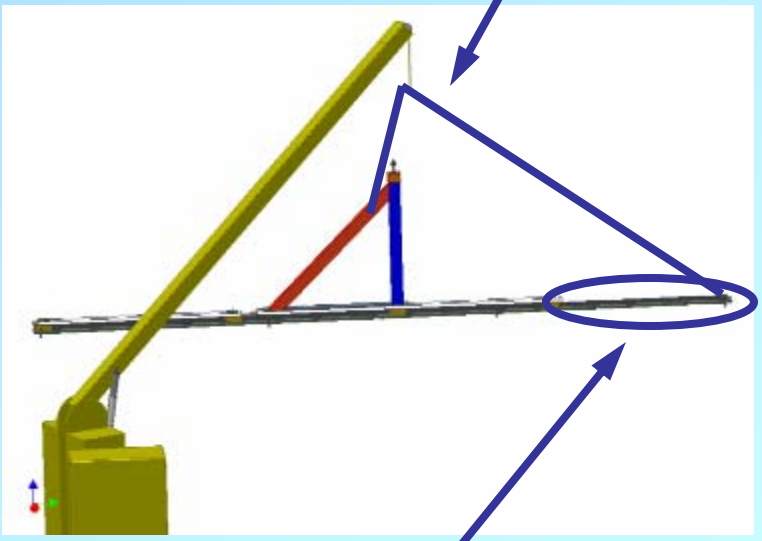
Installing the roller support structure is the first step of installation. The procedure for this step would go something like this:

1.
   a) Practice rigging and survey in factory with simulated gap 5
   b) Pre-set 7 adjusting screws to 1st best guess.
   c) Rig the west base (with rail, pillow blocks, carriage and columns) into place.
   d) Using simulated half-octant survey scale obtain position error
   e) Lift base, readjust leveling screws, repeat 2-4

2. Do the same for east base

Rigid fixture or sling needed to attach at IR corner end and to short column. Fixture must lift from slightly to the beam side so that base can be accurately repositioned from IR corner side. Sling must be remotely detachable from either IR corner or tunnel floor after base is permanently set.



Fixture needs a bar in this location that locks slider in inner most position. Lock must be removable from far end floor level in IR

2. Two Strongback lifting/orienting fixtures
   (already appearing in previous slides)
   Both fixtures are conceptually similar, differ
   in the side they are attached to (long or short)

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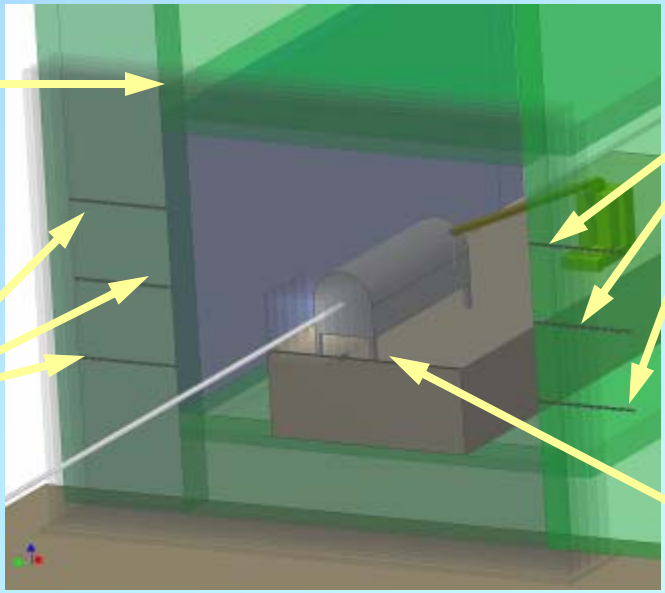
Survey fixture and procedure is still under consideration

After the base support structures have been installed, Install the unistrut guide rails at the pedestal and at beam height levels and +/- ~ 6 ft from beam height on east and west tunnel walls as shown. These rails will be used to prevent pitch rotation (about the horizontal axis perpendicular to the beamline [X-axis]). In addition there will be 4 sets of adjustable brackets above the MuID Steel adjacent to gap 5 and corresponding to the upper bracket ears on Half-octants HO_8 east and HO_8 west.



Note: This view looks thru MuID Steel which has been made transparent for this representation

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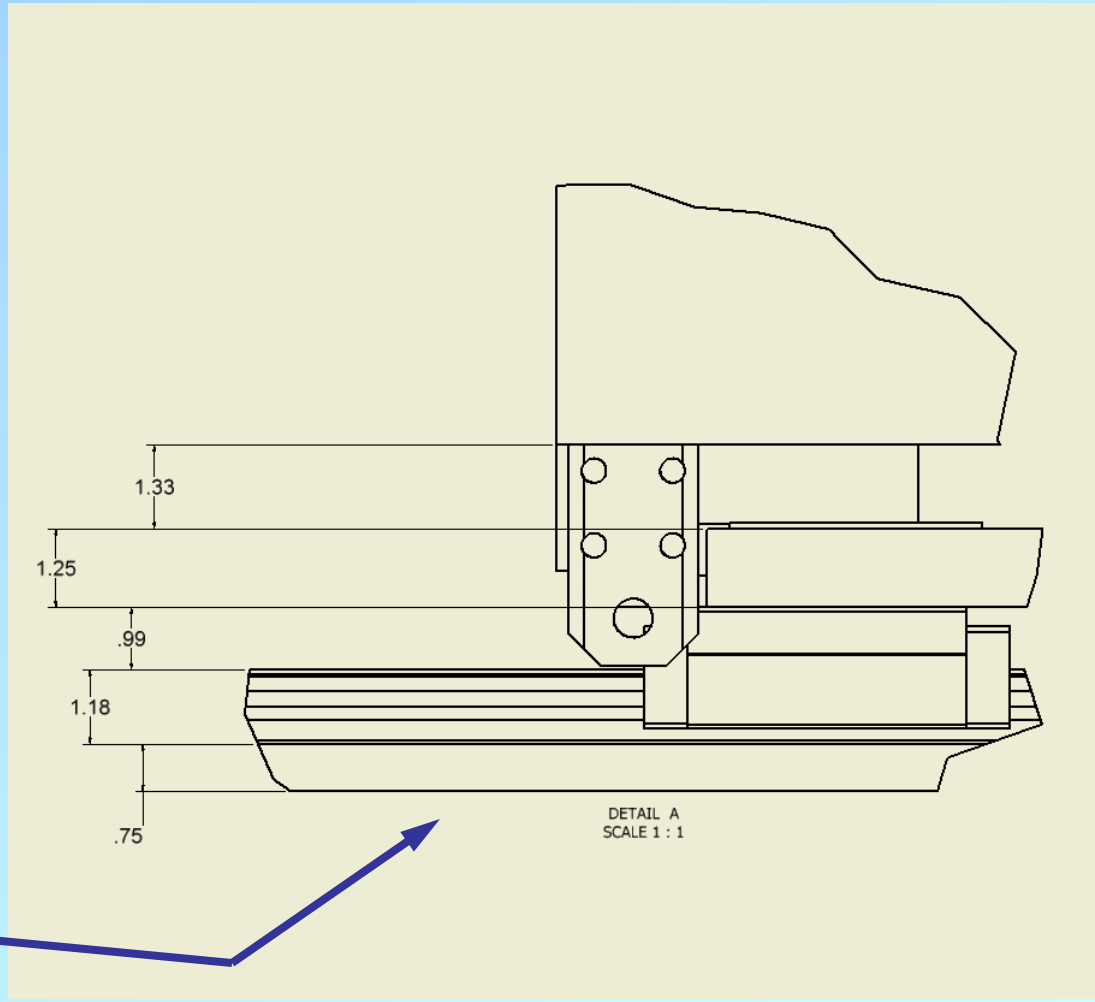
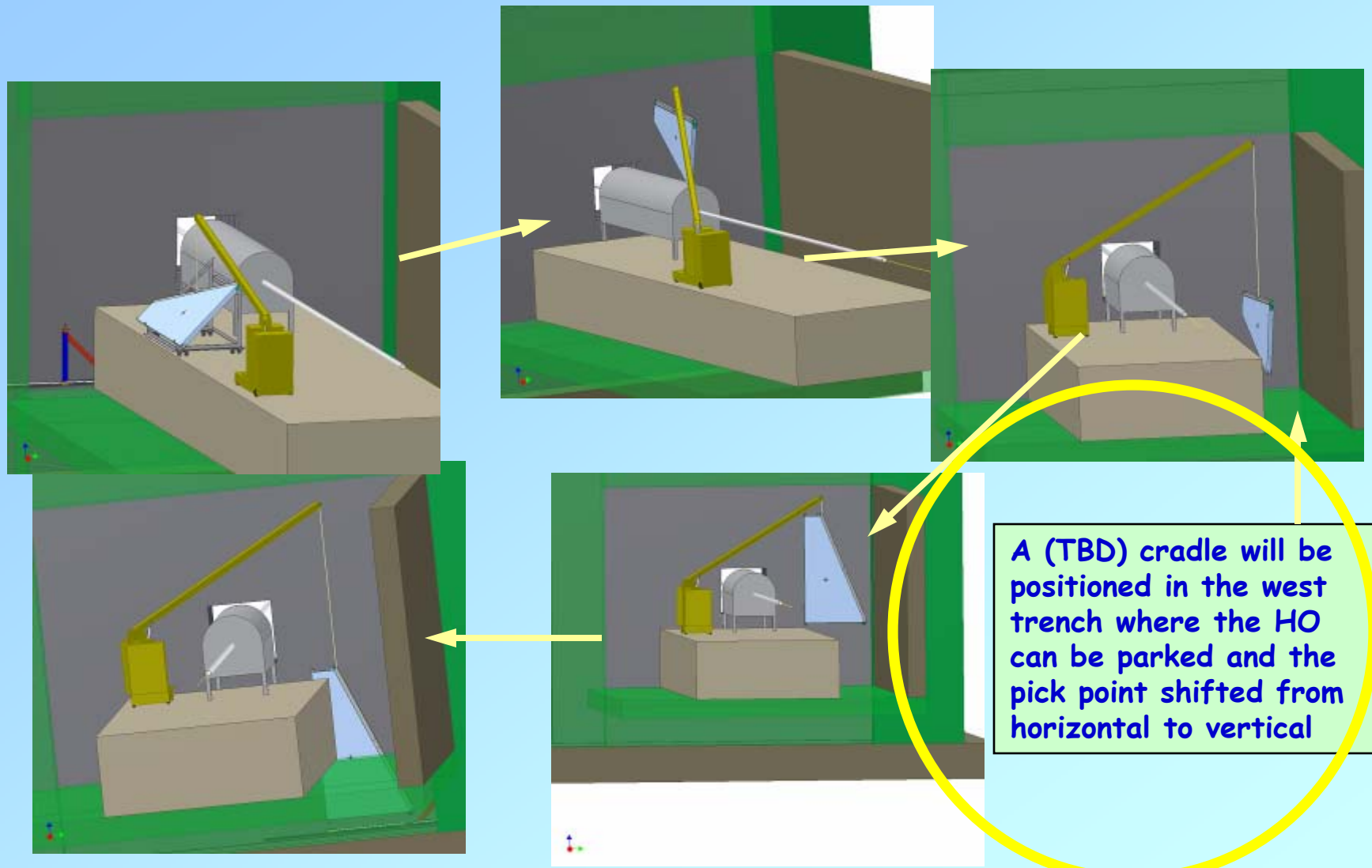
This distance is 5.6" maximum
Possible stackup:

.75" baseplate
+ 1.18" rail
+ .99"(above rail) pillow block
+ 1.25" carriage plate
+ .75 to.1.08" mounting balls
+ .25" Ball Pad
/- 0 to .33" adjustment
= 5.6"

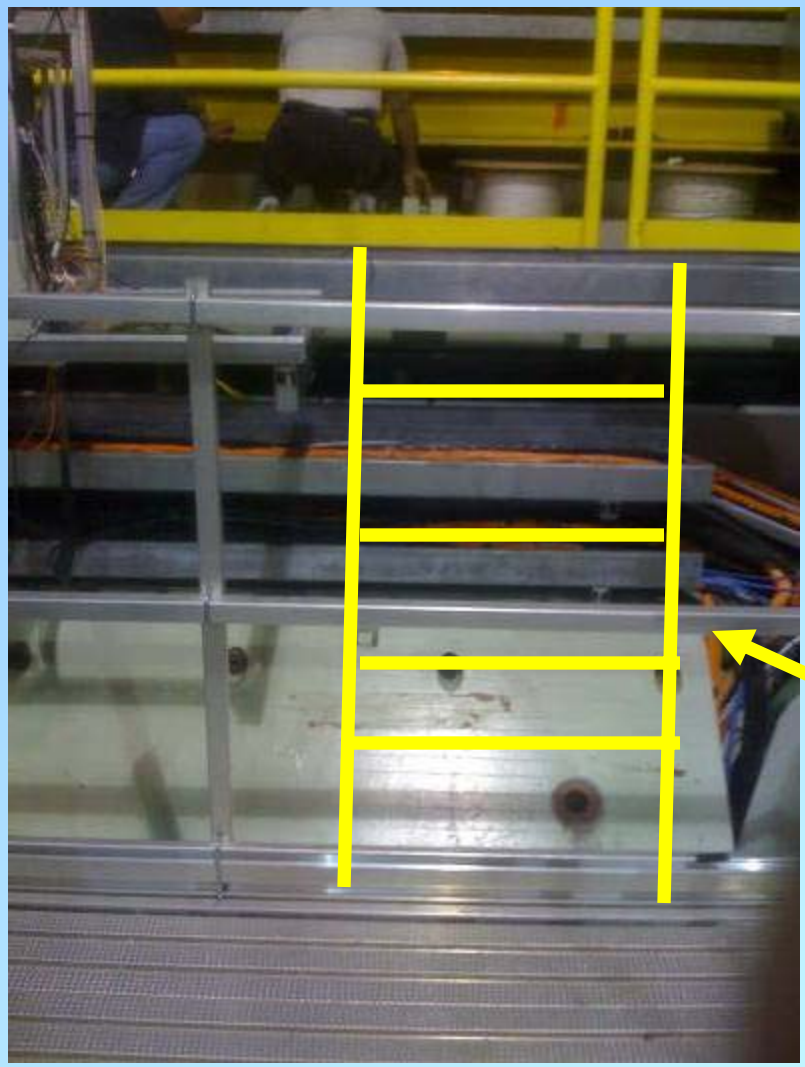
Grouted level underside of fixed baseplate at 200 (min) inches below nominal beam height

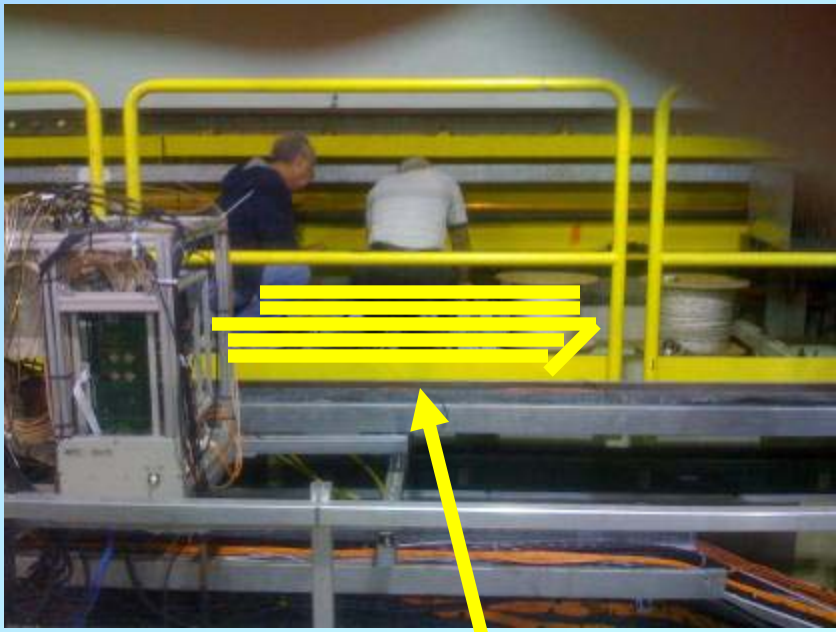


Half Octant West #1



A (TBD) cradle will be positioned in the west trench where the HO can be parked and the pick point shifted from horizontal to vertical





Steps

Platform

Need to design and fabricate easier access (steps and platform) for work above MuID steel.

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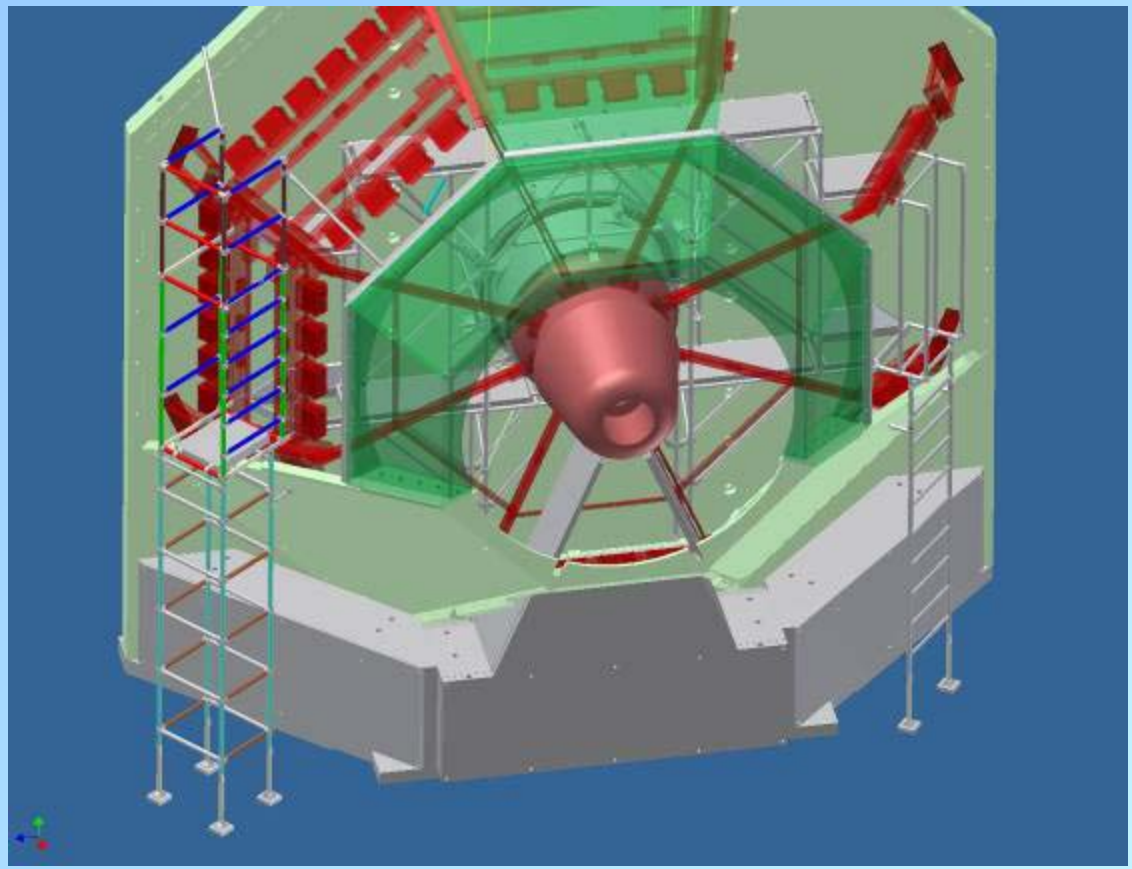
RPC3 North Installation Schedule

Task	Completion Date
Installation Concept Finalized	Apr. 24
Half-Octant Brackets, Connecting Blocks, under detector translating support design	Apr. 30
Installation Fixturing and Tooling Design	May 15
Redesign crystal palace/IR Gas Barrier	May 29
End of Run 9	June 28
Fixturing/Tooling, Brackets/Block/support Fabrication	June 30
Move Shielding/Remove Crystal Palace	June 29-July31
Move cable trays and piping in gap 5	June 29-July 31
Simulated (practice) installation with new fixturing/ tooling	July 13-July 31
Install, level & survey support structure	Aug. 3 - Aug 14
Half Octant Testing and Assembly Complete (1^{st} half Octant ready by Aug.17, 16^{th} by Sep.18)	Aug. 17- Sep. 18
Mechanical Install Align & survey RPC3 N	Aug 17 – Sep. 30
Install 3 elect. Racks, all cables & gas system	Oct. 1 – Oct. 30
Commissioning	Nov. 1 – Nov. 30
Install new crystal palace/IR Gas Barrier & Shielding	Nov. 1 – Nov. 30
Start Run 10	Dec. 1

MuTrigger FEE South

Task	Completion Date
• Install Station 1 South Scaffold (carpenters)	7/31
• Install Station 1 cable management	8/14
• Install station 2/3 scaffolding (Techs)	8/14
• Install station 1 FEE's & Electronics	8/28
• Install station 2 & 3 cable mngment	8/28
• Station 1 plumbing	9/11
• Install station 2/3 FEE's & electronics	9/25
• Station 2/3 plumbing	10/9



Concept approved at
C-A Design Review

Met with Donna Dowling to discuss
Bargaining Unit negotiations

MMS scaffolding

Designed for MuTr installation. Approved in 2000 for use. Stress analysis done for worst case. Current design has minor modifications.

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MuTr Decapacitations

Task	Completion Date
Station 2/3 Decaps	8/14-8/28
Testing/verification	9/4

PC1 East Repair

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Task	Completion Date
• Design Repair support fixture	Done
• Review and approval	Done
• Fabrication	7/1 (order placed)
• Prep for Summer Sunday	8/7
• Restore order after summer Sunday	8/12
• Install support fixture	8/14
• Remove cables and plumbing	8/28
• Roll out DC/PC1	9/4
• Replace failed PC1	9/11
• Roll DC/PC1 in	9/18
• Restore cables and plumbing	9/25
• Test/commissioning	10/2

PC1 East Repair Fixturing Design

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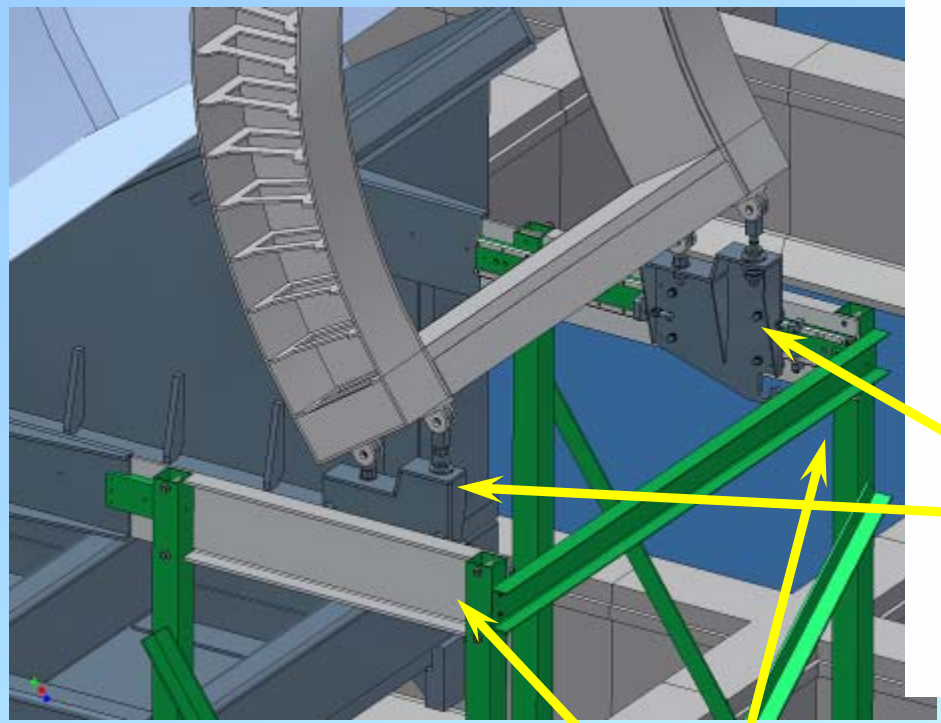
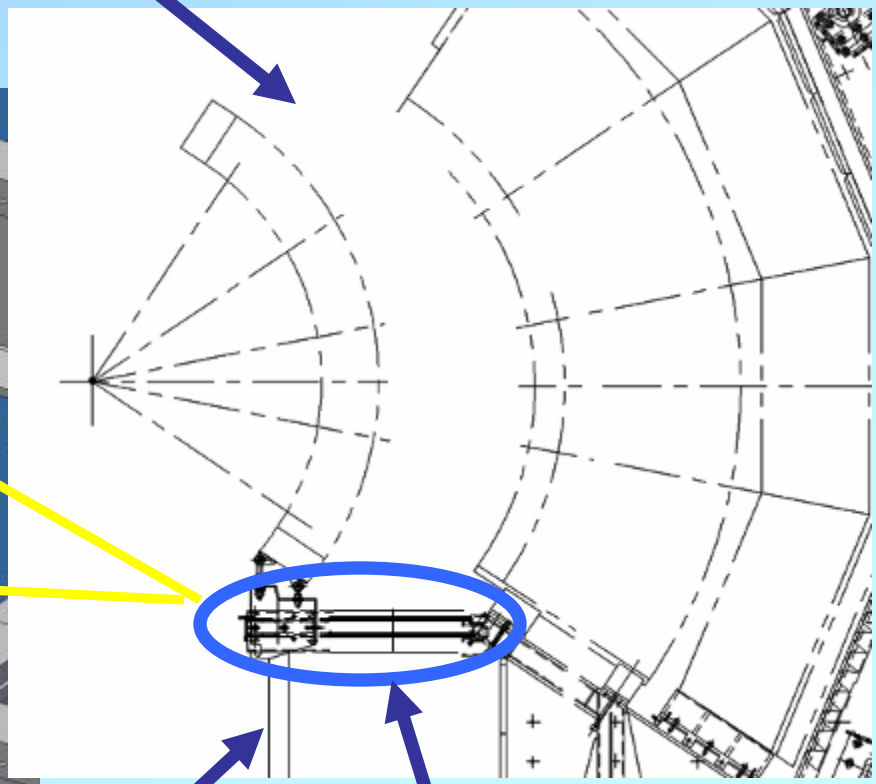
Repairs to be performed during '09 Shutdown

Access to PC1 is adequate to remove and replace module





Quote Rec'd from CS

New Column Supports Under railway extensions

New Railway extensions will allow DC to be pulled out ~ 3 feet more

Gas Pad Expansion, New Argon Dewar

Task	Completion Date
• Proposal	Done
• Review and Approval	5/1
• Design	6/1
• Site Preparation	7/1
• Install Empties racks	8/1
• Install Ar Dewar	9/1
• Test and Commission	10/1

(Rough guess actual schedule TBD)

New Argon Dewar

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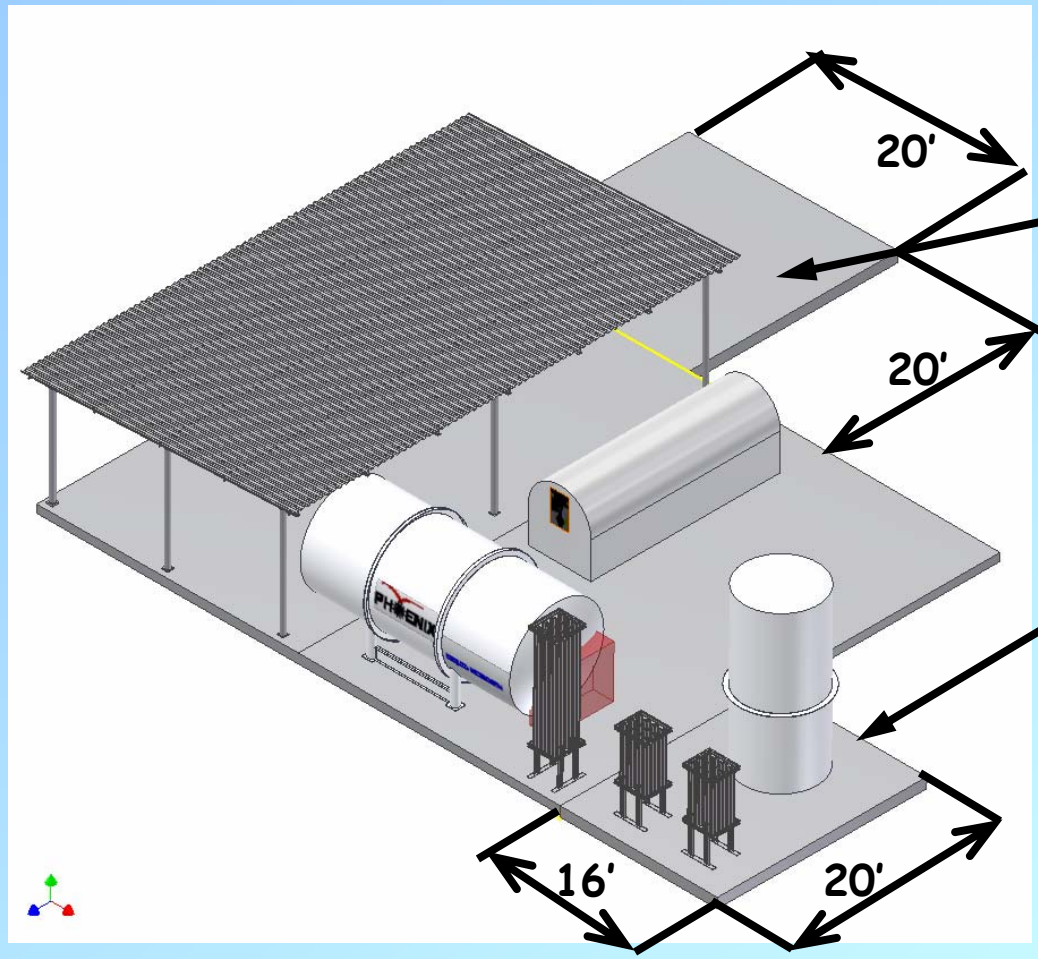


New storage pad for empty gas cylinders, 20'x 20', 9" min thick. reinforced concrete

New Argon Dewar Pad, 16' x 20', 12" minimum thickness, reinforced concrete.

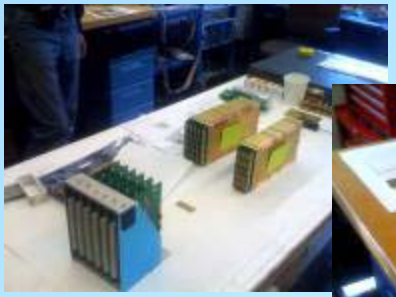
Met with Dave Phillips to walk thru the plan

New DCM Rack Plumbing

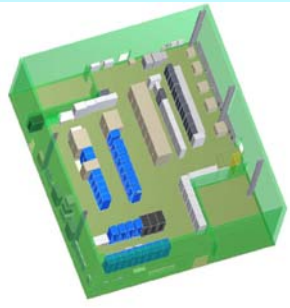
(Not Scheduled Yet)

4 new DCM racks need cooling water plumbing

Other Work



Upgrades Support:
- New Beampipe sections (non-Be)
  - (Sent Drawings to Mike Mapes)
- New Beampipe supports
- FOCAL prototype design support
- VTX fabrication tooling design
- VTX installation design
- FVTX design/eng'g support



Summer Sunday Pre/Post setup/tear down
TBD Existing Detector Maint & Repairs
Maintenance & Overhead Tasks
Rack Room Reorganization

C-A-D AC, Water System, Electrical system work which may impact shutdown schedule: *Tasks, schedules, priorities TBD*

2009 Building Maintenance Issues

- Roof leaks in utility bathroom at northwest corner behind tech offices and over door between rack room and assembly hall.
- Heat wrap tape for trailer bathroom toilet drains to prevent freeze/clogging in winter.
- Improved Rack Room AC performance (This item has been addressed time and again but unsatisfactorily. Currently the AC fails periodically and is repaired only to fail again. On-condition maintenance is not adequate…an engineered solution is needed.)
- Icy conditions at mixing house north stairs

Safety, Security, etc.

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Safety: Reminder: as the weather gets warm, long pants and proper shoes are required at all times in the AH and IR.

Security: Reminder make sure that all doors that are supposed to be locked are locked before the 3 day weekend.

Etc.: Reminder sun block before fun in the sun especially for us fair-skinned folk.

Where To Find PHENIX Engineering Info

Memorial Day Holiday next week. Have a great day and remember those who sacrificed to make it possible.

Links for the weekly planning meeting slides, archives of past meeting slides,long term planning, pictures, videos and other technical info can be found on the PHENIX Engineering web site:

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm